

## Idle Timer Controller - ITC520-A1

2009-2012 Ford E Series - 5.4L and 6.8L Engines

2008-2012 Ford F Series - 6.7L and 6.8L Engines

Contact InterMotive for additional vehicle applications

### System Operation

The ITC520-A1 system will shut off gas or diesel engines that are left idling for an extended period of time. The default timer works as follows: with the Park Brake disengaged, the engine will shut off after 15 minutes of idling. If the Park Brake is applied, the idle time is decreased to 5 minutes. This is similar to CARB diesel anti-idling requirements.

### Installation Instructions

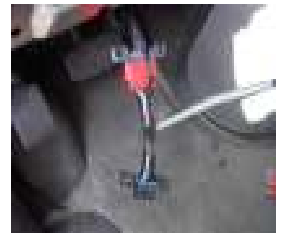
**Disconnect the vehicle's battery before proceeding with installation.**



Remove the lower dash panel below the steering column area and find a suitable location to mount the Idle Timer Controller module. Do not mount the module until all wire harnesses are routed and secure (last step of the installation is to mount the module).

### Data Link Harness

- Locate the vehicle OBDII Data Link Connector. It will be located below the lower left dash panel.
- Remove the mounting screws for the OBDII connector. Plug the red connector from the Idle Timer Controller Data Link T- Harness into the vehicle OBDII connector. Ensure the connection is fully seated and secured with the supplied wire tie.
- Mount the black connector from the Idle Timer Controller Data Link Harness in the former location of the vehicle OBDII connector.
- Secure the ITC520-A1 harness so that it does not hang below the lower dash panel.
- Plug the 6-pin connector from the Data Link Harness into the 6-Pin connector on the module.



### ITC520-A1 Harness (12-Pin Connector and 4-Pin Connector)

**Note:** Most Ignition Switches are no longer designed to supply power directly to vehicle systems that require key position dependant power. For this reason, many vehicles now have electronically controlled Ignition Power outputs that are electrically isolated from the actual Ignition Switch signals. If the desired isolated Ignition Output is not available on a vehicle, a relay must be installed to separate the ignition switch signal from the switched power the load requires. The relay that is used must include a voltage suppression diode to prevent damaging sensitive electronics.

### Ignition Switch connections

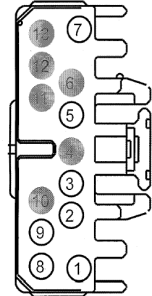
There are separate instructions below for E-Series, 2008-2010 F-Series, and 2011 F-Series. Find the appropriate section for your installation. In the following instructions, the **male** pigtail has Blue and Yellow wires, the **female** has Red and Brown wires.

**Perform only one step at a time, and attach the correct color wire to the white 2-pin connector pigtails. These connections must be made by using solder and the supplied heat shrink tubing. The tubing should be cut to 1" lengths for this purpose.**

### E-Series Ignition Switch Connectors

- Remove the lower steering column trim cover. Locate the ignition switch connector and disconnect it from the switch.
- Locate Pin #2 Blue/Red wire, Pin #7 Blue/Red wire, and Pin #8 Brown/Yellow wire. (On stripped chassis vehicles Pin #2 and Pin #7 are Green/Red wires.)
- Find a place on the vehicle Ignition Harness with ample space to install the white 2-pin connector pigtails. (Supplied with the ITC520-A1.)
- Cut the Ignition Switch Pin #2 and Pin #7 wires (both are Blue/Red) and attach the ignition switch side of both wires to the **female** 2-pin connector Red wire.
- Attach the Harness side of the Pin #2 and Pin #7 Blue/Red wires to the **male** 2-pin connector Blue wire.
- Cut the Ignition Switch Pin #8 Brown/Yellow wire and attach the ignition side to the **female** 2-pin connector Brown wire.
- Attach the harness side of the Pin #8 Brown/Yellow wire to the **male** 2-pin connector Yellow wire.
- Attach the 2-pin Ignition connectors to the ITC520-A1 Harness.
- Attach the 12 Pin connector of the ITC520-A1 Harness to the ITC520-A1 Module.
- Attach the 4 Pin connector of the ITC520-A1 Harness to the ITC520-A1 Module 4 Pin Connector.
- Reattach the Ignition Switch Connector to the Ignition Switch.

Connector: C250 Description: IGNITION SWITCH



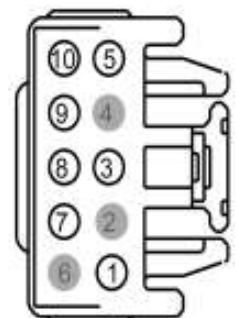
E Series - Front of the Ignition Switch Connector



### 2008-2010 F-Series Ignition Switch Connectors

- Remove the lower steering column trim cover. Locate the ignition switch connector and disconnect it from the switch.
- Note the Pin Numbers on the connector.
- Locate Pin #7. (Brown/Yellow wire)
- Locate Pin #9. (Blue/Red wire)
- Find a place on the vehicle Ignition Harness with ample space to install the white 2-pin connector pigtails. (Supplied with the ITC520-A1.)

Connector: Description: Part #  
C250 IGNITION SWITCH - GP 1



F Series - Front of the Ignition Switch Connector

InterMotive Inc.  
13395 New Airport Rd. Suite A  
Auburn, CA 95602

Phone: (530)-823-1048  
Fax: (530)-823-1516

www.intermotive.net  
products@intermotive.net  
ITC520A1-07-INS

## 2008-2010 F-Series Ignition Switch Connectors (Continued)

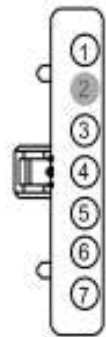
- Cut the Ignition Switch Pin #7 wire and attach the ignition switch side to the female 2-pin connector Brown wire.
- Attach the Harness side of the Pin #7 wire to the male 2-pin connector Yellow wire.
- Cut the Ignition Switch Pin #9 wire and attach the ignition side wire to the female 2-pin connector Red wire.
- Attach the harness side of the Pin #9 wire to the male 2-pin connector Blue wire.
- Plug the 2-pin Ignition connectors into the ITC520-A1 Harness.
- Attach the 12 Pin connector of the ITC520-A1 Harness to the ITC520-A1 Module.
- Attach the 4 Pin connector of the ITC520-A1 Harness to the ITC520-A1 Module.
- Reattach the OEM Ignition Switch Connector to the Ignition Switch.



## 2011 F-Series Ignition Switch Connections

- Remove the lower steering column trim cover. Locate the ignition switch connector and disconnect it from the switch.
- Note the Pin Numbers on the connector.
- Locate Pin #1. (White/Orange wire)
- Locate Pin #6. (Violet/Green wire)
- Find a place on the vehicle Ignition Harness with ample space to install the white 2-pin connector pigtails. (Supplied with the ITC520-A1.)
- Cut the Ignition Switch Pin #1 White/Orange wire and attach the ignition switch side to the female 2-pin connector Red wire.
- Attach the Harness side of the Pin #1 White/Orange wire to the male 2-pin connector Blue wire.
- Cut the Ignition Switch Pin #6 Violet/Green wire and attach the ignition side wire to the female 2-pin connector Brown wire.
- Attach the harness side of the Pin #6 Violet/Green wire to the male 2-pin connector Yellow wire.
- Attach the 2-pin Ignition connectors to the ITC520-A1 Harness.
- Attach the 12 Pin connector of the ITC520-A1 Harness to the ITC520-A1 Module.
- Attach the 4 Pin connector of the ITC520-A1 Harness to the ITC520-A1 Module.
- Reattach the OEM Ignition Switch Connector to the Ignition Switch.

Connector: IGNITION SWITCH Color



2011 F Series - Front of the Ignition Switch Connector



## Module Location

- Locate the module in an area away from any external heat sources. (Engine heat, Heater ducts, etc...)
- Mount the module with two-sided tape or mounting screws.

## Optional Shutdown indicators and override inputs

- There are 3 optional signals with "flying lead" wires provided for connecting to external equipment or devices as described below. These three signal are located on the ITC520-A1 modules 12 pin connector.
- Warning beeper, lamp or LED output - Orange wire, Pin #2. This signal provides 12V when active. The maximum allowed draw on this circuit is 1/2 amp. If an LED is used it must also have an integral resistor wired in series. Attach this Orange wire to the positive input for the LED or beeper. Attach a ground wire to the negative input. This output pulses repeatedly during the final 30 seconds of Shutdown.
- Override High input - Green wire, pin #4. Applying 12V to this input will prevent engine shut down, and can be connected to equipment such as a PTO, pumps, compressors, etc.
- Override Low input - Blue wire, pin #5. Applying ground to this input will prevent engine shut down, and can be connected to equipment such as a PTO, pumps, compressors, etc.
- Ensure that unused flying leads will never make electrical contact with anything by taping, cutting, or extracting the wires (pin extraction requires Molex tool).
- Reconnect the vehicle's battery. If the module's factory default settings do not need to be changed (below), proceed to the Post Installation Check List section.

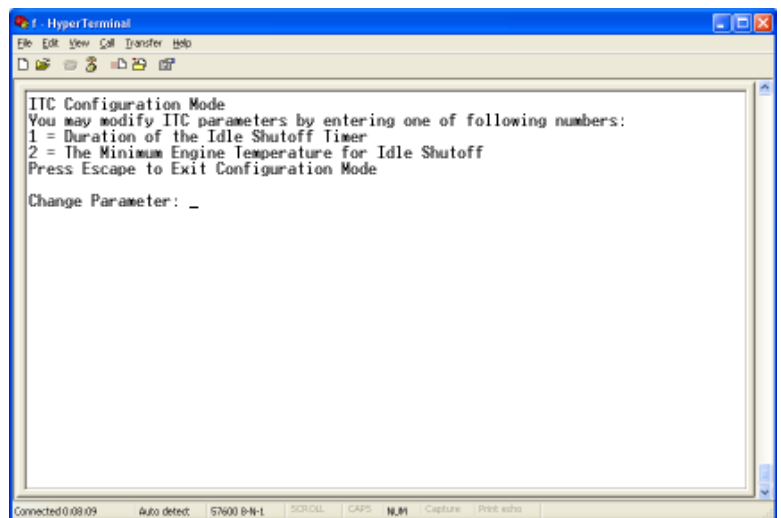
## Reconfiguring the Shut Down Timer and Minimum Engine Shut Down Temperature

Follow these steps to reconfigure the Minimum Engine Shut Down Temperature and/or Shut Down Timer:

- Ensure that the proper drivers are installed for the USB to Serial Communication cable provided by InterMotive. All driver files are located online at: <http://www.ftdichip.com/Drivers/VCP.htm>
- Find the correct drivers for your system and follow the steps to download the latest version (located under the "Driver Version" heading). If unsure about the installation process, please contact InterMotive for further assistance.
- Once the installation process is complete, plug the Communication cable into one of your computer's USB ports.
- Ensure the vehicle's key is off and plug the other end of the download cable into the port labeled 'COMM' on the module.
- Open the communication application HyperTerminal. This program can be found under: Start > All Programs > Accessories > Communications > HyperTerminal.

## Reconfiguring the Shut Down Timer and Minimum Engine Shut Down Temperature . (Continued)

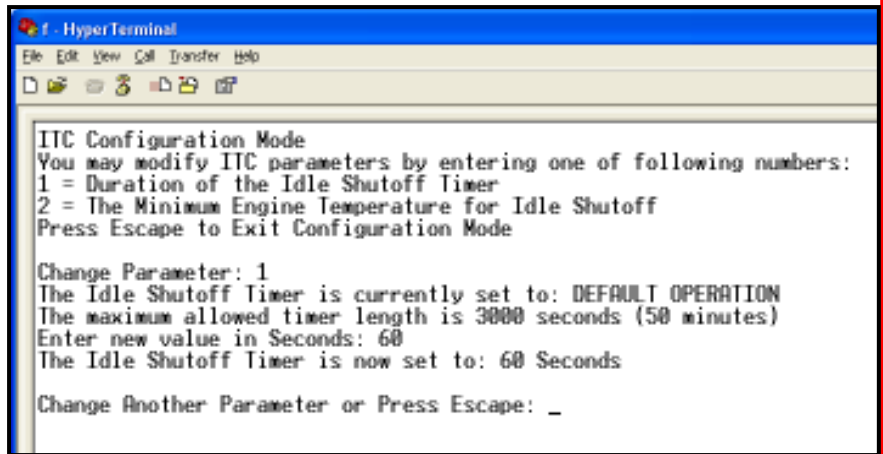
- You will be prompted to give this connection setup a name. We suggest something meaningful such as "ITC Config".
- The next window will prompt you to select the COM port to setup the connection on. Typically, the highest numbered COM port will be the InterMotive Communication cable.
- **Note:** This can be double-checked on Windows XP by right-clicking on 'My Computer' and selecting 'Properties.' From this window select the 'Hardware' tab and click on 'Device Manager.' In the Device Manager window, expand the 'Ports' menu and the download cable will display as 'USB Serial Port.'
- In the next window, several of the default parameter for the Port Settings need to be changed.
- Change the Bits per second to: **57600**, Data bits: **8**, Parity: **None**, Stop bits: **1**, and Flow control: **None**.
- HyperTerminal setup is now complete.
- Turn the vehicle key to the ON position. The ITC520-A1 module should wakeup and text should display on the open HyperTerminal window.
- If text does not appear, unplug the 6 pin connector from the ITC520-A1 module, wait several seconds and plug the connector back in.
- If, after above step, text does not appear, go to File > New Connection and try re-configuring the HyperTerminal as described above. If unsuccessful, contact InterMotive for further assistance.
- With communication established, type in the word "config" (followed by the enter key) and the screen should look like Screen Shot 1.



Screen Shot 1

## Reconfiguring the Shut Down Timer and Minimum Engine Shut Down Temperature (Continued)

- Enter the Parameter to be changed:
  1. change idle timer duration
  2. adjust minimum engine temperature for shutdown.
- If 1 is selected, the screen will look like Screen Shot 2. Key in a new Idle Shut-down Time, in seconds, followed by the Enter key. Note that changing this value from the default setting will cause Park Brake to have no effect on the Idle Timer duration. To restore the default setting, enter the number 10,000 followed by the Enter key.
- If 2 is selected, the screen will look like Screen Shot 3. Key in a new minimum warm up temp in degrees F, followed by the Enter key.
- **Press escape when parameters are set correctly.**
- When finished, key off ignition and disconnect the Communication cable.



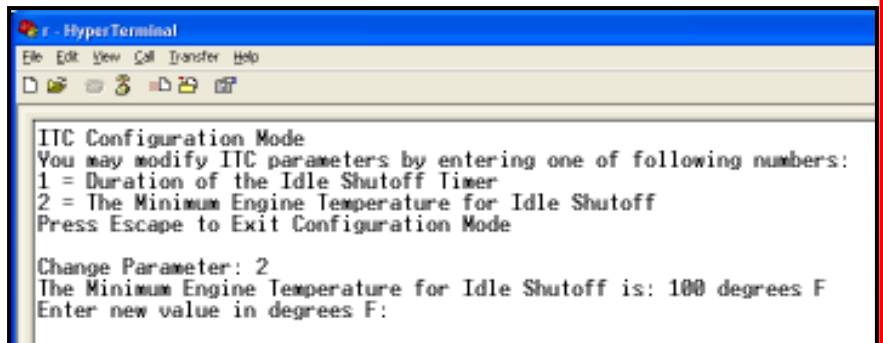
```
HyperTerminal
File Edit View Call Transfer Help
[Icons]

ITC Configuration Mode
You may modify ITC parameters by entering one of following numbers:
1 = Duration of the Idle Shutoff Timer
2 = The Minimum Engine Temperature for Idle Shutoff
Press Escape to Exit Configuration Mode

Change Parameter: 1
The Idle Shutoff Timer is currently set to: DEFAULT OPERATION
The maximum allowed timer length is 3000 seconds (50 minutes)
Enter new value in Seconds: 60
The Idle Shutoff Timer is now set to: 60 Seconds

Change Another Parameter or Press Escape: _
```

Screen Shot 2



```
HyperTerminal
File Edit View Call Transfer Help
[Icons]

ITC Configuration Mode
You may modify ITC parameters by entering one of following numbers:
1 = Duration of the Idle Shutoff Timer
2 = The Minimum Engine Temperature for Idle Shutoff
Press Escape to Exit Configuration Mode

Change Parameter: 2
The Minimum Engine Temperature for Idle Shutoff is: 100 degrees F
Enter new value in degrees F:
```

Screen Shot 3

### Post Installation Check List

#### Putting the module into Test Mode.

Start the engine. Test mode can be entered by holding down the Service Brake then setting and releasing the Park Brake 4 times within a 10 second period. If successful, LED10 on the ITC520-A1 module will be lit. Release the Service Brake. When this Test Mode is active, the shut off timer is reduced to 15 seconds. LED 9 will come on for 1 second at the start of the shut off timer.

A Park Brake, Service Brake, or Accelerator Pedal input will reset the timer. LED 9 will light to verify each input has reset the timer. Also verify function of any light or buzzer connected to the optional indicator output. During the final 5 seconds the indicator should flash or sound multiple times until the engine is shut off. Confirm LED10 goes off when engine is shut off. Turn off the ignition. Status LED will light briefly.

**If the ITC520-A1 fails any step in the Post Installation Check List, review the installation instructions and check all connections. If necessary, call InterMotive technical support at (530) 823-1048.**

- Reinstall the column trim cover and under dash panel.



An ISO 9001:2008 Registered Company

## **Idle Timer Controller - ITC520-A1**

**2009-2012 Ford E Series - 5.4L and 6.8L Engines**

**2008-2012 Ford F Series - 6.7L and 6.8L Engines**

**Contact InterMotive for additional vehicle applications**

### **System Operating Instructions**

#### **ITC520-A1 Overview**

- The ITC520-A1 system is an idle timer engine shut off system. It automatically stops the engine if the vehicle is left idling for an extended period of time, in Park or Neutral, without operator input.
- Default operation: with the Park Brake disengaged the engine will shut off after 15 minutes of idling. If the Park Brake is applied, the idle time is decreased to 5 minutes.
- A custom timer length and minimum engine warm-up temperature may be set by the vehicle manufacturer. When that time expires and the engine is above warm up temp (default 100° F) the engine will shutoff regardless of Park Brake state.

#### **Ignition Power Restore and Restart**

- ITC520 switches off Ignition power to stop the engine and minimize battery draw. Ignition power is restored once the key is moved from the Run position to either the Start or Off positions.
- When ITC520 has switched off Ignition power, there is still a small power draw from the battery. This draw could potentially drain the battery if the key is left in the vehicle for an extended period of days. For this reason, as well as to prevent theft, the key should always be removed from the Ignition once the operator has finished with the vehicle.

#### **Optional shutdown indicators.**

- An installer supplied optional indicator light or buzzer may be wired to the Shut off Indicator Output.
- If a light or buzzer is connected to the optional indicator output, it will flash or sound repeatedly during the final 30 seconds prior to Shut off.

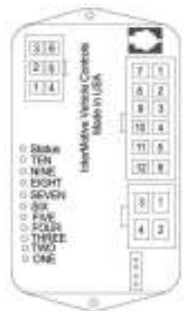
#### **Timer override inputs.**

- If the driver applies the Parking Brake, Service Brake, or presses the Accelerator Pedal, the shut off timer will be reset.
- Timer Override inputs are provided to allow vehicle equipment (PTO, compressor, etc....) to disable the shut off timer when equipment is in use.
- Once the optional equipment is switched off the ITC520-A1 will resume Idle Timer sequence.

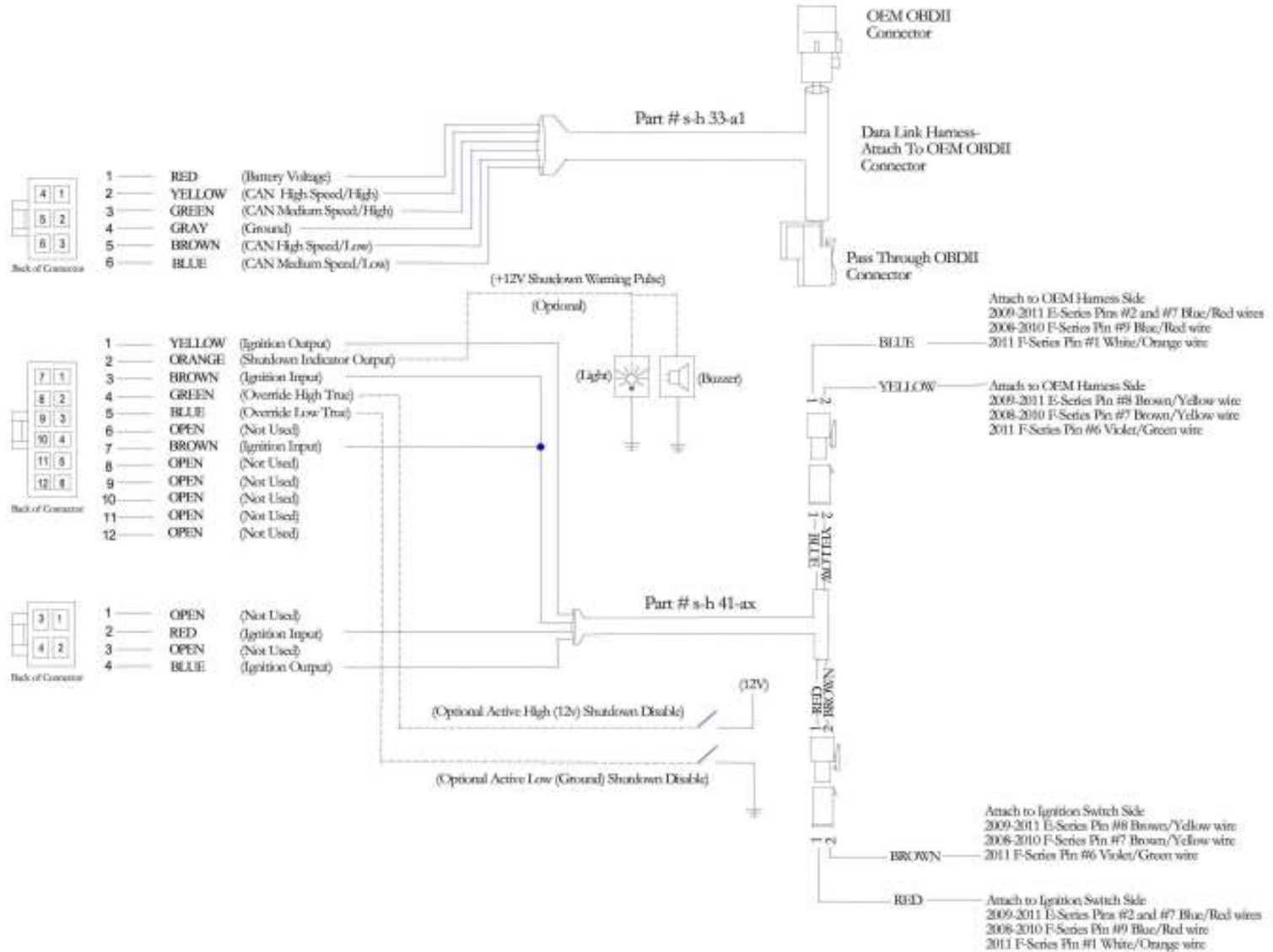
InterMotive Inc.  
13395 New Airport Rd. Suite A  
Auburn, CA 95602

Phone: (530)-823-1048  
Fax: (530)-823-1516

www.intermotive.net  
products@intermotive.net  
ITC520A1-07-OP



ITC520-A1  
Part # s-m 1200-14



## Submit product registration at [www.intermotive.net](http://www.intermotive.net)

If the ITC520-A1 fails any step in the Post Installation Check List, review the installation instructions and check all connections.  
If necessary, call

**InterMotive Technical Support @ (530) 823-1048.**